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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,647	01/05/2005	Marie D'Angelo	034299-617	5196
7590 Thelen Reid & Priest PO Box 640640 San Jose, CA 95164-0640		10/09/2007	EXAMINER CHIU, TSZ K	
			ART UNIT 2822	PAPER NUMBER
			MAIL DATE 10/09/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/520,647

Applicant(s)

D'ANGELO ET AL.

Examiner

Tsz K. Chiu

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 12-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 3/28/05
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Yu et al. (20020088970).

With respect to claim 1, Yu discloses nano-objects (312), particularly atomic threads, single dimensional nano-structures and quantum dots, this set being characterised in that the nano-objects are made of a metal and are formed on the surface of a substrate (302) made of a monocrystalline semiconducting material.

With respect to claim 2, Yu discloses the monocrystalline semiconducting material is chosen from among monocrystalline silicon carbide, monocrystalline diamond, covalent monocrystalline semiconductors, and composite monocrystalline semiconductors (paragraph 87, lines 1-5).

With respect to claim 3, Yu discloses substrate is a monocrystalline substrate of silicon carbide in the cubic phase (paragraph 71, lines 5-10).

With respect to claim 4, Yu discloses the surface (2) is a cubic silicon carbide surface, rich in .beta.-SiC (100) 3.times.2 silicon (paragraph 71, lines 5-10).

With respect to claim 5, Yu discloses the nano-objects are three-dimensional clusters (4) of the metal on the surface (Fig. 21).

With respect to claim 6, Yu discloses the clusters are distributed in an orderly manner (fig 21, the nano object spaced in orderly manner) on the surface and thus form a lattice of metal dots.

With respect to claim 7, Yu discloses the surface is a cubic silicon carbide surface (paragraph 71, lines 5-10) which is Si terminated,  $\beta$ -SiC(100) c(4.times.2), and the nano-objects are parallel atomic threads or parallel single-dimensional nanometric strips of the metal (308, For example Fig. 21).

With respect to claim 8, Yu discloses the surface comprises parallel atomic threads of Si (308, For example Fig. 21), the atomic threads and single dimensional strips of the metal being perpendicular to these atomic threads of Si.

With respect to claim 9, Yu discloses passivated areas (fig. 21, area between 312) and non-passivated areas (fig. 21, area where reference number 312) and the nano-objects are formed on these non-passivated areas of the surface.

#### ***Allowable Subject Matter***

Claim 10-11 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The cited art Yu fail to teach a metals for which the d band is full, jellium type

Art Unit: 2822

metals, alkaline metals and transition metals which the metal is chosen from among sodium and potassium.

Claim 10-11 would be allowable if rewritten to overcome the objection(s), set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tsz K. Chiu whose telephone number is 571-272-8656. The examiner can normally be reached on 0800 to 1700.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra V. Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC

Application/Control Number: 10/520,647

Page 5

Art Unit: 2822

September 30, 2007

A handwritten signature in black ink, appearing to be 'M. Wilczewski', with a stylized, flowing script.

M. Wilczewski  
Primary Examiner  
TC 2800